

EXHIBIT A

Biomechanical Testing of Tibialis Anterior Graft Tibial Tunnel Fixation with Bioabsorbable RetroScrews and BioScrew XtraLok in Porcine Bones

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Purpose: This study evaluated the failure mode, maximum load at failure, displacement at failure, and stiffness differences of doubled tibialis anterior graft-tibial tunnel fixation using retrograde bioabsorbable interference screws (Arthrex, Naples, FL) and 35-mm BioScrew XtraLok (Linvatec, Largo, FL) after cyclical loading.

Type of Study: Experimental laboratory biomechanical study.

Hypothesis: There is no difference in maximum load, displacement and stiffness at failure of doubled tibialis anterior graft-tibial tunnel fixation using Retrograde (Arthrex, Naples, FL) and 35-mm BioScrew XtraLok (Linvatec, Largo, FL) after cyclical loading.

Methods: Twelve specimens of porcine tibias were divided into 6 matched pairs based on bone mineral densitometry. Wilcoxon tests comparisons were used to assess group differences ($P < .05$).

Results: Maximum load at failure after cyclic loading for the RetroScrew was 778.7 ± 177.5 N, with a displacement of 5.3 ± 2 mm and a stiffness modulus of 204.3 ± 52.9 N/mm. Maximum load at failure after cyclic loading for the BioScrew-XtraLok screw

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was 1436.3 ± 331.3 N, with a displacement of 5.9 ± 2.6 mm and a stiffness modulus of 323.6 ± 56.8 N/mm. Fixation using XtraLok screws displayed greater maximum load at failure than RetroScrew fixation ($P = .028$) as well as greater stiffness ($P=0.046$). Significant differences were not evident for displacement at final pullout. All constructs failed by graft pullout.

Conclusions: Fixation using a single 35-mm BioScrew XtraLok screw displayed increased maximum load at failure and stiffness compared with the 20-mm RetroScrew with 17-mm cortical backup fixation.